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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,913

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Hyae Gyeong Cheon

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05/08/2009

Baker & Hostetler LLP

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EXAMINER

BAEK, BONG-SOOK

ART UNIT

PAPER NUMBER

1614

MAIL DATE

DELIVERY MODE

05/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,913	Applicant(s) CHEON ET AL.	
	Examiner BONG-SOOK BAEK	Art Unit 1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-10 is/are pending in the application.
- 4a) Of the above claim(s) 5-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

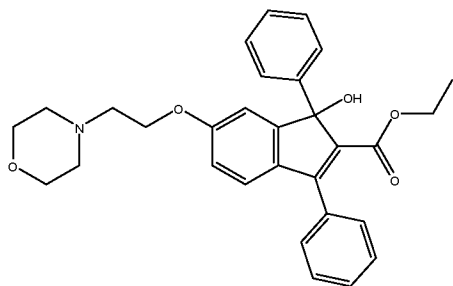
DETAILED ACTION

A request for continued examination under 37 C.F.R. 1.114, including the fee set forth in 37 C.F.R. 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 C.F.R. 1.114, and the fee set forth in 37 C.F.R. 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 C.F.R. 1.114. Applicant's submission filed April 14, 2009 has been received and entered into the present application.

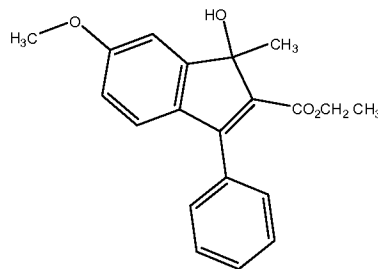
Status of claims

The amendment filed on April 14, 2009 is acknowledged. Claims 1-3 have been canceled and claims 5-7 have been withdrawn. New claim 10 is added.

Claims 4 and 8-9 are amended as being dependent from claim 10. It is noted that claim 10 is not readable on the following elected species or next species to which the search has been expanded since those compounds have hydroxyl group for variable R_{1a} while the compounds in claim 10 have hydrogen for variable R_{1a} :



1-hydroxy-6-(2-morpholine-4-ylethoxy)-1,3-diphenyl-1H-indene-2-carboxylic acid ethyl ester



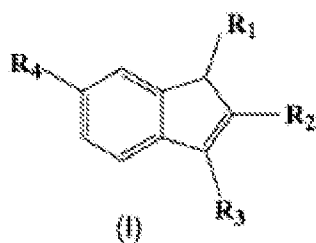
Also, most of compounds recited in claim 4 including the elected species (8th compound) and the next species (4th compound) are not embraced by the generic structure recited in claim

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10. Thus, claims 4 and 8-10 should be withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species. However, for compact prosecution, claims 4 and 10 are examined in the instant office action since claim 4 is dependent from claim 10.

Claim objections

Claims 4 and 10 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. As stated above, most of compounds recited in claim 4 including elected species (8th compound) and the next species (4th compound) are not embraced by the following generic structure recited in claim 10:



wherein,

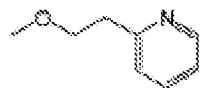
R_1 is $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$, $-\text{NH}_2$, $-\text{NHCOCH}_3$, $-\text{NHCOC}_2\text{H}_5$, $-\text{N}(\text{C}_2\text{H}_5)_2$, $-\text{NHC}_2\text{H}_5$,



R_2 is CO_2R^a , CONHR^b or CN ;

R_3 is phenyl; and

R_4 is $-\text{OCH}_3$, $-\text{O}(\text{CH}_2)_3\text{R}^c$, $-\text{O}(\text{CH}_2)_2\text{R}^d$, $-\text{CH}_2\text{R}^d$ or



in which

R^a is H, methyl or ethyl;

R^b is cyclohexyl;

R^c is phenyl; and



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Claim 4 is also objected to for being dependent from the following claim (claim 10) and a claim which is drawn to non-elected species. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

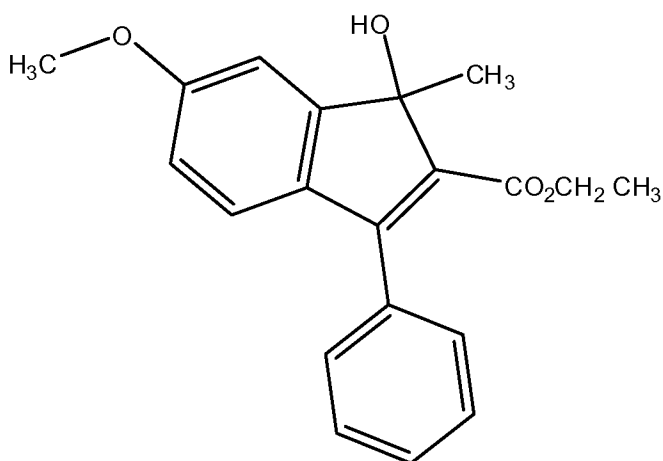
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

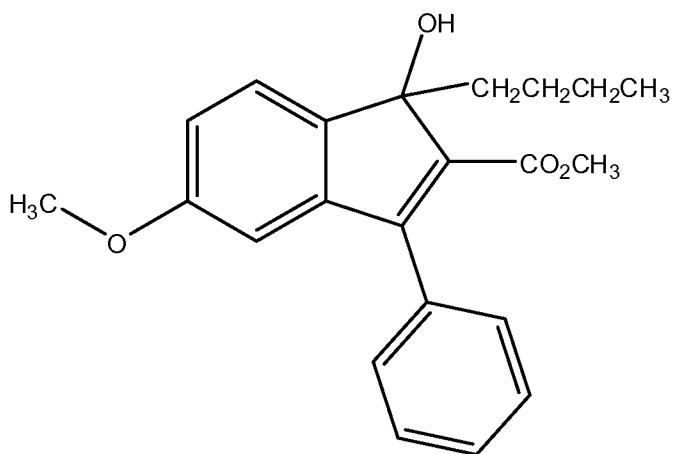
Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rayabarapu *et al.* in view of US patent 3,642,785 (patented on 2/15/1972).

The following compound is recited in the instant claim 4 (4th compound).



1-hydroxy-6-methoxy-1-methyl-3- phenyl-1H-indene -2-carboxylic acid ethyl ester

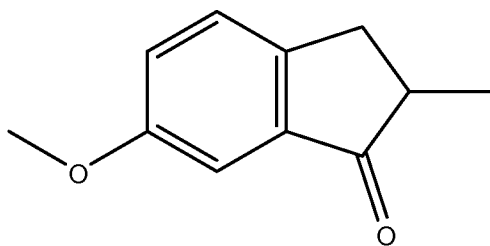
Rayabarapu *et al.* teach the following indenol compound (p6727, table 2, entry 16) as stated in the previous action.



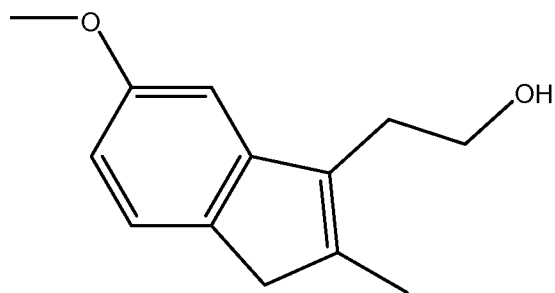
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The difference between the instant compound and that of the prior art is that the instant compound has methyl group instead of butyl in the position 1 of indene ring; ethyl ester rather than methyl ester at the position 2; and has a methoxy group at the position 6 instead of the position 5.

US patent 3,642,785 teaches compounds of the following structure, which show modification of the position of methoxy group from the position 5 to the position 6 in the similar core structure to that of the instant compounds while retaining the same activity (example 3 and example 6):

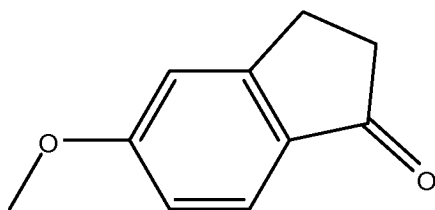


2-methyl-6-methoxyindanone

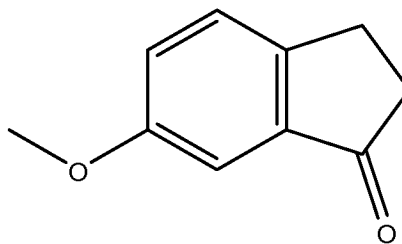


2-methyl-5-methoxy-3-indenethanol

It further teaches that many indanones such as the following 5-methoxyindanone and 6-methoxyindanone are known in the literature and are readily available as intermediates for the synthesis (column 10, lines 9-30):



5-methoxyindanone



6-methoxyindanone

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It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to modify the compound taught by Rayabarapu *et al.* to arrive at the instantly claimed compound because of the following reasons: First, US patent 3,642,785 suggests that change in the position of methoxy group at the similar core structure would be possible while retaining the same activity and teaches that positional isomers such as 5-methoxyindanone and 6-methoxyindanone are readily available for synthesis. Also, it is routine experimentation to substitute a methyl group with longer alkyl group such as C₂₋₅ alkyl group or vice versa in the field of medicinal chemistry. To those skilled in the art of medicinal chemistry, one homologue is not such an advance over adjacent member of series as requires invention because chemists knowing properties of one member of series would in general know what to expect in adjacent members. *In re Henze*, 85 USPQ 261 (1950). In addition, one skilled in the art at the time the invention was made would have been motivated to make analogs of Rayabarapu *et al.* to arrive at other biologically active indenol compounds with reasonable expectation of success since Rayabarapu *et al.* teach indenol moiety is an important and central structural unit present in various biologically active compounds (p6726, left column 1st paragraph) as stated in the previous action.

Also see MPEP 2144.09:

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A *prima facie* case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." *In re Payne*, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979).

Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by $-CH_2-$ groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BONG-SOOK BAEK whose telephone number is 571-270-5863. The examiner can normally be reached 8:00-5:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on 571-272-071818. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian-Yong S Kwon/
Primary Examiner, Art Unit 1614
Bbs

BONG-SOOK BAEK
Examiner, Art Unit 1614